EXAM

Human-Computer Interaction

Tuesday 28 June 2013

Instructions

- This exam consists of 15 questions, worth 6 points each; in total 90 points. You get 10 points for free.
- Answers in English would be appreciated, but Dutch is also fine.
- You are allowed to consult a (print-out) of the textbook by Stone *et al.* and a print-out of the lecture slides.
- **Make sure your answers are concise and to the point**. Irrelevant extra text will reduce the number of points you get for a question.

Use scenario

Before answering the questions please read the scenario below carefully:

> "Alfio is 35 years old; he lives in Rome and together with his girlfriend he often likes to prepare dinners for friends. He likes cooking a lot. He often browses the Web for new recipes and cooking services online. He has many friends online (in social networks) with whom he is exchanging cooking experiences. He has heard of a new website that allows him to explore thousands of recipes (including ingredient search) and adapt the recipes to your preferences, bookmark them, and share them with your friends. Two new (French) colleagues are coming over for dinner tomorrow and he wants to prepare something special inspired by the French cuisine.
>
> He goes to the website and creates an account. After logging in he is offered the option to import his Gmail contacts to search for friends in this service. He sees that 5 of his friends are already using this site. He adds them all to his 'connection' list. The he starts browsing the recipes. He types into the search field the string '*French dishes*'. He gets a new screen with lots of search results (on multiple pages with the option 'Next' to go to each next page) – for each recipe a thumbnail image with the recipe name and a short description, e.g. *ingredients, cooking time, calories and rating*. He uses the option 'Filter by type' and selects 'Fish'. He sees the search results now clustered in groups of different types of fishes. He selects the cluster 'White Fish' and now gets a new screen with all the thumbnails of white fish dishes. He browses a bit by clicking on the thumbnails of various dishes and inspecting their full description of the recipes. Clicking on a thumbnail brings him to a new page with a longer description of each recipe, including *title, description, instructions, ingredients, cooking time, calories, number of friends that have favorite it, rating, etc.* He sees that one recipe is favorited by his friend Yoko living in Japan. Alfio clicks on the thumbnail and reads the description - it is a variation of the '*French Bouillabaisse*' with the '*Japanese Fugu fish*'. This recipe requires two Japanese ingredients ('*mirin*' and '*togarashi*') that he is not familiar with. He changes the language to see the ingredient names in Italian. He sees that '*togarashi*' is a

Japanese '*chili pepper*' and that '*mirin*' is a '*sweet Japanese rice wine*' used for cooking. Two alternatives are given for 'mirin' - '*plain sake*' and '*dry white grape wine*'. He uses the option '*find near you*', and types his postal code and country, to see whether his local shops carry those products. He gets a list of local shops that carry '*plain sake*' or/and '*dry white grape wine*'. He adds the recipe '*Fugu Bouillabaisse'* to his favorites.

He then cooks the dish and after the dinner is finished, he goes back to the cooking website and posts a comment to the recipe that the cooking time was not 1 hour and 30 mins as indicated, but 2 hours. He also posts some pictures of his dish and gives his rating for it. Finally, he shares his newly acquired and experienced dish on *Facebook* by selecting the option '*share*' on the recipe page."

Questions

1. Specify a user profile in which Alfio would fit. Which part(s) of the profile are in your opinion the most important for this application? Explain why.

2. Specify the concrete use case, which corresponds to this scenario.

3. Specify an essential use case on the basis of the concrete use case resulting from the previous question 2.

4. Which tasks are supported by the cooking website? Indicate also task dependencies, if any.

5. Give a detailed specification of the container corresponding to the home page of the cooking website.

6. Sketch a content diagram with all containers mentioned in the scenario. You don't need to specify all the details of the containers, only container names and function names.

7. Assume the cooking application would provide an additional function, namely to generate '*menu recommendations*' based on the your browsing and search history. Can you think of an appropriate mental model, which you could exploit in such a '*menu recommendation*'?

8. Consider the four psychological principles for UI design ((i) users see what they expect to see, (ii) users have difficulty focusing on more than one activity at a time, (iii) it is easier to perceive a structured layout, (iv) it is easier to recognize something than to recall it). Select two principles for which you give an example of how it is used (or should have been used, in case you spotted a violation) in the cooking website.

9. Consider the following UI design principles: (i) mapping, (ii) feedback, (iii) visibility, and (iv) affordance. For each principle think of a potential violation in the context of the cooking website.

10. Give examples of three requirements that are necessary to ensure external consistency of the cooking website with a version of it offered via mobile app.

11. Give three examples of quantitative usability requirements: one of type "*Effectiveness*", one of type "*Engaging*", and one of type "*Easy to learn*".

12. Assume you want to set up a user study for the cooking website. Specify an overall goal of the study, one relevant empirical scientific question, one relevant/corresponding hypothesis and the corresponding null hypothesis, as well as dependent, independent and control variables.

13. Given the hypothesis specified in the previous question 12: draw up a design of a quasi experiment to test this hypothesis. Give explicitly the type of the design. Explain why you have chosen for this design and indicate how and why you make use of randomization.

14. Specify three closed questions, which you could include in a survey to measure how useful the cooking website is to the user.

15. Consider again adding a function for generating a '*menu recommendation*' of recipes. Envisage how a use scenario for this function could look like in 10 years time, taking into account the new types of interaction likely to be available by then. In answering this question you are allowed to make educated guesses about the state of the art in HCI by 2023.